BATALOV, Anatoliy Leonidovich; GURVICH, Raisa Pavlovna; KOTOVSKIY, G.G., otv. red.; GARMSEN, O.M., red. izd-va; BERESLAVSKAYA, L.Sh., tekhn. red.

[Can India feed itself?] Mozhet li Indiia prokormit' sebia? Moskva, Izd-vo vostochnoi lit-ry, 1961. 97 p. (MIRA 14:12)
(India—Agriculture)

BATALOV, A. L.

Dissertation defended for the degree of Candidate of Ecomomic Sciences at the Institute of the People of Asia

"Transport of Modern India."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

PISARENKO, G.A.; RADYA, V.S.; GEROTSKIY, V.A.; BLIKANOV, A.A.; MOKRONOSOV, Ye. D.; YEFREMOV, P.N.; BORSHCHER, L.B.; YEFIMOV, I.Z.; MYKOL'NIKOV, A.A.; BATALOV, A.N.; TSEPOVA, M.N.

Casting magnesium cast iron into a chill with a metal core. Stal' 24 no.7:607-610 Jl '64. (MIRA 18:1)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov, Lys'venskiy i Severskiy metallurgicheskiye zavody i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

BATALOV, Aleksey Nikolayevich; MYKOL'NIKOV, Anatoliy Andreyevich; SHTUNDEL', Rudol'f Ivanovich; KOROTKOV, V.G., kand. tekhn. nauk, retsenzent; DUGINA, N.A., tekhn. red.

[Practice in making large castings from bronze] Opyt izgotovleniia krupnykh otlivok iz bronzy. Moskva, Mashgiz, 1963. 46 p. (MIRA 16:4)

(Bronze founding)

BATALOV, A. I.

Automatic device for cutting off and counting blanks of porcelain or earthenware paste. Stek. i ker. 20 no.3:36-37 Mr '63. (MIRA 16:4)

(Ceramics—Equipment and supplies)

BATALOV, A.P.

KORSHUNOV, I.A.; BATALOV, A.P.

Using radioactive sulfur for the study of the concentration process of rare isotopes of sulfur by the method of chemical exchange. Zhur. neorg. khim. 2 no.11:2676-2679 N '57. (MIRA 11:3)

1.Gor'kovskiy Gosudarstvennyy universitet im. N.I. Lobachevskogo Kafedra radiokhimii.
(Sulfur--Isotopes) (Ion exchange)

AMENITSKAYA, R.V.; BATALOV, A.P.; GLAZOV, V.M.; KORSHUNOV, I.A., prof.; KUTSEPIN, V.F.; NOVOTOROV, N.F.; ORLOVA, A.A.; PETROV, A.M.; SHAFIYEV, A.I.

[Problems in radiochemistry]Sbornik zadach po radiokhimii. [By] R.V.Amenitskaia i dr. Pod red. I.A.Korshunova. Gor'kii, Gor'kovskii gos. univ. im. I.I.Lobachevskogo, 1959. 91 p. (MIRA 15:11)

1. Prepodavateli khimicheskogo fakul'teta Gor'kovskogo gosudarstvennogo universiteta im. N.I.Lobachevskogo (for all)
(Radiochemistry)

KORSHUNOV, I.A.; BATALOV, A.P.; ORLOVA, A.A.

Radiochemical study of radical exchange in certain organometallic compounds. Radiokhimiia 1 no.6:679-682 '59.
(MIRA 13:4)
(Radicals(Chemistry)) (Organometallic compounds)

5 (3)

AUTHORS: Korshunov, I. A., Amenitskaya, R. V., Orlova, A. A., Batalov, A. P. SOV/79-29-6-48/72

TITLE: Radiochemical Investigation of the Reciprocal Exchange of the Radicals in Some Systems (Radiokhimicheskoye issledovaniye obmena radikalami v nekotorykh sistemakh)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1992-1995 (USSR)

ABSTRACT: In a previous paper (Ref 1) the reciprocal exchange of the radicals was investigated in the following systems by means of the radioactivated isotope C^{14}: diphenyl mercury - benzene, phenyl mercury hydroxide - benzene, tetraphenyl lead - benzene, in the heating and irradiation with ultraviolet light. The analysis of the experimental data shows that the reciprocal exchange of the radicals takes place according to the open radical mechanism or over an intermediate formation of reaction complex with the solvent. Moreover, the degree of the exchange which depends on the composition of the reacting system and the conditions of the reactions makes it possible to determine the mobility of the individual radicals in the compounds to be investigated. In the present report the

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Radiochemical Investigation of the Reciprocal Exchange SOV/79-29-6-48/72
of the Radicals in Some Systems

investigation results of the reciprocal exchange of the phenyl- and ethyl radicals is described for the following systems:
$C_6H_5HgBr - \overset{*}{C}_6H_5Br$, $C_6H_5HgBr - \overset{*}{C}_6H_6$, $C_6H_5MgBr - \overset{*}{C}_6H_5J$,
$C_6H_5MgBr - \overset{*}{C}_6H_6$, $C_2H_5MgBr - \overset{*}{C}_2H_5Br$, $(C_2H_5)_4Pb - \overset{*}{C}_2H_5Br$,
$(C_6H_5)_4PJ - \overset{*}{C}_6H_5J$, $(C_6H_5)_4PJ - \overset{*}{C}_6H_6$ and $(C_6H_5)_2O - \overset{*}{C}_6H_6$. It is shown that the reciprocal exchange of the phenyl radicals in organomercury compounds and the ethyl radicals in organolead compounds takes place only in the presence of additions e.g. cobaltous chloride, aluminum bromide, metallic silver. It was found that the exchange of the phenyl radical in organomagnesium and organophosphorus compounds, with or without additions, does not take place (2 tables). There are 2 tables and 4 Soviet references.

Card 2/3

Radiochemical Investigation of the Reciprocal Exchange of the Radicals in Some Systems

SOV/79-29-6-48/72

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University)

SUBMITTED: December 9, 1957

Card 3/3

5(3)

AUTHORS: Korshunov, I. A., Batalov, A. P. SOV/79-29-9-69/76

TITLE: Exchange of Radicals in Organo-metallic Compounds. I. Exchange of Ethyl Radicals in the System Lead Tetraethyl - Ethyl Bromide

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3135 - 3139 (USSR)

ABSTRACT: In many reactions the arrangement of radicals and positive organic ions varies from one molecule to the other (Refs 1-5). Exchange reactions of radicals are also known in organometallic compounds (Refs 6,7). G. Calingaert, H. A. Beaty, and L. Hess (Ref 8) investigated the mobility of radicals in organo-lead compounds, and it was found that on the exchange in the system $Pb^{*}(C_2H_5)_4+(C_2H_5)_3PbCl \rightleftarrows Pb(C_2H_5)_4+(C_2H_5)_3 Pb^{*}Cl$ equilibrium is attained after 24 hours. G. Calingaert, H. Soroos, and V. Hnizda (Ref 9) proved that the exchange reaction refers to many organo-metallic compounds with different radicals, but only in the presence of various additions (Ref 10). The investigation of this exchange process is of great interest for an interpretation of the mechanism of chemical reactions. It is noted that

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Exchange of Radicals in Organo-metallic Compounds. SOV/79-29-9-69/76
I. Exchange of Ethyl Radicals in the System Lead Tetraethyl - Ethyl Bromide

investigation of the exchange of equal radicals is only possible by the isotopic method. The authors originally based their paper on this method by investigating systematically the exchange reactions of equal radicals in various organo-metallic compounds. The present paper deals with the possibilities and conditions of an exchange of ethyl radicals between lead tetraethyl and ethyl bromide with the tagged carbon C^{14}. This investigation was made with photo- and thermoreactions under the influence of various additions in various solvents. The exchange reactions did not take place without additions even under photographic irradiation. The presence of small quantities of halogen salts of aluminum and iron, as well as of triethyl aluminum and dimethyl formamide effected a noticeable exchange which may increase up to 20%. Polar solvents stimulate the exchange (for details see the experimental part and the tables). N. M. Skvortsov assisted in the experiments. There are 4 tables and 15 references, 11 of which are Soviet.

Card 2/3

Exchange of Radicals in Organo-metallic Compounds. I. SOV/79-29-9-69/76
Exchange of Ethyl Radicals in the System Lead Tetraethyl - Ethyl Bromide

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete (Scientific Research Institute of Chemistry at Gor'kiy State University)

SUBMITTED: July 19, 1958

Card 3/3

BATALOV, A. P., Cand Chem Sci -- "Radiochemical study of the exchange of free radicals in certain metallic organic compounds." Len, 1961. (Min of Higher and Sec Spec Ed RSFSR. Lenin Order of Lenin State U im A. A. Zhdanov (KL, 8-61, 230)

53700

21088
S/079/61/031/003/012/013
B118/B207

AUTHORS: Korshunov, I. A. and Batalov, A. P.

TITLE: Exchange of radicals in organo-metallic compounds. III. Exchange of phenyl and ethyl radicals in organo-aluminum compounds

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 964-969

TEXT: The authors continued their study on the exchange of radicals in organo-metallic compounds and investigated the conditions under which this exchange takes place in the systems "triphenyl aluminum - benzene" in cyclohexane and "triethyl aluminum - ethyl bromide" under the action of various admixtures. Benzene and ethyl bromide were tagged with C^{14}. In the first system, the exchange of the phenyl radicals, without admixtures, does not take place, not even under rigorous conditions, or takes place with admixtures within 30 hr at 150°C within the error limits (Table 1). In the system "triethyl aluminum - ethyl bromide" without admixtures, there is also no exchange. Introduction of metal halides into this system, however, causes a considerable exchange (Table 2) which exceeds the calculated error of

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activity by far. The admixtures used were chiefly metals of varying valence and their halogen salts. Such admixtures as titanium tetra- and nickel chlorides cause an explosion of the ampoule if the experiment takes a comparatively long period of time and is carried out at above 100°C; a thick, resinoid substance results, which is not decomposed by alcohol. Exchange in the presence of metallic silver, bismuth, and copper is not effected by these metals themselves, but by their halides forming under experimental conditions. In the presence of $SnCl_2$, AgBr, CuCl, $CuCl_2$, $CoCl_2$, $FeCl_3$, and $BiCl_3$ the exchange reaction is always smooth, without explosion of the ampoule; thus, it was possible to determine its kinetics. A characteristic feature of this reaction with the use of the above admixtures is the absence of gas-like by-products, which indicates that the admixtures do not cause a dealkylation of triethyl aluminum; the small amounts of gas detected are due to a lesser thermal decomposition of the initial products, especially ethyl bromide. Thus, a considerable exchange of ethyl radicals between triethyl aluminum and ethyl bromide was obtained under the action of copper, iron, and bismuth halides. The rate constants of exchange and the activation energy were calculated. With respect to their effect upon the ac-

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B118/B207

Exchange of ...

celeration of the exchange reaction, the admixtures are classified as follows (Table 3): $BiCl_3 > CuCl_2 > CuCl > FeCl_3 > CoCl_2 > AgBr > SnCl_2$.

V. N. Kurakin participated in one of the experiments. The authors thank V. I. Biryukov for his help. There are 4 figures, 3 tables, and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: E. G. Rochov, D. T. Hurd, K. W. Lewis. The Chemistry of Organometallic Compounds, N. Y., 136 (1947).

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni P. I. Lobacheskogo. (Scientific Research Institute of Chemistry of Gor'kiy State University imeni P. I. Lobachevskiy)

Exchange of ...

Legend to Table 1: 1) admixture, 2) activity of $Al(C_6H_5)_3$ after the exchange reaction (imp/min), 3) exchange.

Добавка (1)	Активность $Al(C_6H_5)_3$ после реакции обмена (имп./мин.) (2)	Обмен (в %) (3)
—	24	—
$PbCl_2$	69	3.8
$CoCl_2$	134	7.9
$NiCl_2$	111	6.3
$FeCl_3$	122	6.7
$CuCl_2$	107	5.9
$BiCl_3$	130	7.3

Table 1

Legend to Table 2: 1) admixture, 2) time (hr), 3) activity of $Al(C_2H_5)_3$ after the exchange reaction (imp/min), 4) exchange, 5) dto.

Добавка (1)	Время (час.) (2)	Активность $Al(C_2H_5)_3$ после реакции обмена (имп./мин.) (3)	Обмен (в %) (4)
—	15	24	—
Ag	5	158	7.7
То же (5)	12	281	12.8
Cu	10	429	21.1
Bi	10	546	26.8
$TiCl_4$	5	414	20.3
То же (5)	12	613	30.4
$NiCl_2$	5	926	45.4

Table 2

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Legend to Table 3: 1) admixture, 2) temperature, 3) time (hr), 4) degree of exchange, 5) sec^{-1}, 6) activation energy (cal/mole)

Table 3

Добавка (1)	Температура (2)	Время (3)	Степень обмена (4)	$K \cdot 10^4$ ($сек.^{-1}$) (5)	Энергия активации (кал./моль) (6)
$SnCl_2$	100°	30	0.15	0.38	6000
	115	30	0.23	0.53	
	135	30	0.31	0.77	
AgBr	100	35	0.23	0.50	11000
	115	30	0.39	0.96	
	135	30	0.57	1.82	
$CoCl_2$	85	20	0.45	1.92	9000
	100	20	0.65	3.36	
	115	20	0.79	5.09	
$FeCl_3$	85	20	0.63	3.37	8000
	100	20	0.90	6.13	
	115	15	0.86	8.18	
$CuCl_2$	85	20	0.73	4.13	7000
	100	20	0.88	6.80	
	115	15	0.89	9.34	
CuCl	85	20	0.75	4.38	6500
	100	20	0.88	6.23	
	115	15	0.88	8.82	
$BiCl_3$	85	15	0.75	6.13	10500
	100	15	0.88	6.82	
	115	12	1.00	15.54	

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BATALOV, A.P.; KORSHUNOV, I.A.

Radical exchange in organometallic compounds. Part 5: Mechanism of the exchange reaction. Zhur.ob.khim. 31 no.5:1649-1653 My '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni N.I.Lobachevskogo.
(Radicals (Chemistry)) (Organometallic compounds)

88570

5.3700

S/020/61/136/001/018/037
B016/B055

AUTHORS: Batalov, A. P. and Korshunov, I. A.

TITLE: Studies on the Exchange of Ethyl Radicals in the System $Al(C_2H_5)_3$ - C_2H_5Br

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 1, pp. 93-95

TEXT: The present work on the exchange of ethyl radicals between $Al(C_2H_5)_3$ and C_2H_5Br is a continuation of the studies on the exchange of radicals in organometallic compounds (Hg: Ref. 1, Pb: Ref. 2, Mg: Ref. 3). Since the exchange of identical alkyl or aryl radicals can only be studied by means of the tracer method, the authors used C^{14}-tagged C_2H_5Br (the synthesis is described in Ref. 2). The bomb tubes were filled in a pure nitrogen atmosphere, frozen in liquid nitrogen, evacuated, sealed, and thermostated. The degree of exchange was determined from the C^{14} content of the CO_2 obtained by decomposition of the $Al(C_2H_5)_3$ and subsequent combustion of the ethane so formed (Ref. 4). The authors summarize their

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Studies on the Exchange of Ethyl Radicals in the System $Al(C_2H_5)_3$ - C_2H_5Br

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experimental results as follows: a) Exchange of radicals does not occur, even under extreme conditions (150°C, 20 h), in the absence of metal halides. The authors therefore used metal halides having d electrons in their orbitals. b) The presence of $TiCl_4$ or $NiCl_2$ leads either to explosion of the tube or to polymerization (resinification). c) In the presence of $BiCl_3$, $FeCl_3$, $CuCl_2$, CuCl, $CoCl_2$, AgBr or $SnCl_2$ the exchange proceeds smoothly and generally without explosion. d) Gases or other by-products are not formed. e) The exchange rate is greatly reduced by using ethyl ether as solvent. The experimental results appear in Table 1. The authors assume that the reaction involves three stages: 1) Alkyl halide and metal halide form a polarized molecular compound in which the covalent carbon-hydrogen bond is loosened owing to polarization: $\overset{*}{R}X + MX_3 \rightarrow \overset{*}{R}X \ldots MX_3$ (A). 2) $Al(C_2H_5)_3$ and this molecular compound form a 6-membered cyclic complex stabilized by alternately rupturing and forming bonds (Ref. 5):

$$R_3Al + \overset{*}{R}X \ldots M_3X \longrightarrow R_2Al\begin{matrix} R\cdots X \\ \diagdown \quad \diagup \\ \overset{*}{R}\!-\!X \end{matrix}MX_2 \quad (B).$$

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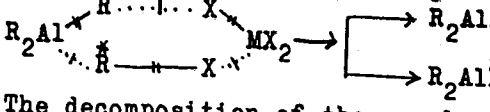
Studies on the Exchange of Ethyl Radicals in the System $Al(C_2H_5)_3$ - C_2H_5Br S/020/61/136/001/018/037 B016/B055

3) The complex decomposes by scission of just forming bonds (the lines ····|···) or old bonds in the process of loosening (the lines ——|——):



$$R_2Al\overset{R\cdots|\cdots X}{\underset{\overset{*}{R}——X}{}}MX_2 \longrightarrow \begin{cases} \longrightarrow R_2AlR + \overset{*}{R}X + MX_3 \text{ - no exchange} \\ \longrightarrow R_2Al\overset{*}{R} + RX + MX_3 \text{ - exchange} \end{cases} \qquad (V)$$

The decomposition of the complex which may be regarded as a pseudo molecule, is a monomolecular reaction. The reaction rate may be calculated by $K = -\frac{1}{t}\ln(1 - \frac{A_t}{A\infty})$, where t = time in seconds, A_t = activity of $Al(C_2H_5)_3$ at the time t; A_∞ = its activity at equilibrium (100% exchange). An unoccupied orbital in the aluminum atom aids complex formation. The authors were able to confirm this by transforming $Al(C_2H_5)_3$ into a stable etherate by means of diethyl ether. Since the unoccupied orbital is filled up by the donor-acceptor bond between aluminum and oxygen, the exchange rate drops rapidly. The authors thank G. A. Razuvayev, Corresponding Member AS USSR, for discussion of their work. There are 1 table and 6 Soviet references.

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Studies on the Exchange of Ethyl Radicals in the System $Al(C_2H_5)_3 - C_2H_5Br$

S/020/61/136/001/018/037
B016/B055

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research Institute of Chemistry of the Gor'kiy State University imeni N. I. Lobachevskiy)

PRESENTED: July 11, 1960, by M. I. Kabachnik, Academician

SUBMITTED: June 8, 1960

Table 1, Legend: 1: Additive, 2: solvent, 3: temperature, 4: $K \cdot 10^{-5}$ sec^{-1}, 5: E kcal/mole.

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[Table 1]
Таблица 1

Добавка	Раствори-тель	Т-ра, °С	$K \cdot 10^{-5}$, сек$^{-1}$	E, ккал/моль	Добавка	Раствори-тель	Т-ра, °С	$K \cdot 10^{-5}$, сек$^{-1}$	E, ккал/моль
$BiCl_3$	—	90	0,13		CuCl	—	85	4,33	
	—	100	8,82	10,5		—	100	8,23	6,5
	—	115	15,54			—	115	8,82	
	Эфир	100	0,052		$CoCl_2$	—	85	1,92	
		115	0,072	9,0		—	100	3,36	9,0
		120	0,096			—	115	5,09	
$FeCl_3$	—	85	3,37		AgBr	—	100	0,50	
	—	100	6,13	8,0		—	115	0,96	11,0
	—	115	8,18			—	135	1,82	
	Эфир	100	0,041		$SnCl_2$	—	100	0,38	
		110	0,052	13,0		—	115	0,53	6,0
		125	0,086			—	135	0,77	
$CuCl_2$	—	85	4,13						
	—	100	6,80	7,0					
	—	115	9,34						
1	2	3	4	5	1	2	3	4	5

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S/081/61/000/024/029/086
B138/B102

AUTHORS: Batalov, A. P., Korshunov, I. A.

TITLE: Radical exchange in organometallic compounds. VI. New method of determining the composition of triethyl aluminum complexes with certain organic solvents

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 183, abstract 24Zh13 (Tr. po khimii i khim. tekhnol. [Gor'kiy], no. 3, 1960, 501-504)

TEXT: A new method is proposed for the determination of composition of $(C_2H_5)_3Al$ (I) complexes with oxygen- and nitrogen-containing solvents, based on the influence of the complex-forming solvents on the degree of ethyl radical exchange between I and $C_2{}^{14}H_5Br$. The compositions of the complexes $Al(C_2H_5)_3 \cdot (C_2H_5)_2O$, $Al(C_2H_5)_3 \cdot C_5H_5N$ and $2Al(C_2H_5)_3 \cdot C_4H_8O_2$ were determined. For the preceding report see RZhKhim, 1961, 23Zh38.
[Abstracter's note: Complete translation.]

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ACCESSION NR: AR4015646 S/0081/63/000/022/0434/0435

SOURCE: RZh. Khimiya, Abs. 22N50

AUTHOR: Korshunov, I. A.; Batalov, A. P.; Maleneva, I. G.; Rostokin, G. A.

TITLE: Direct synthesis of acrylonitrile from propylene and ammonia

CITED SOURCE: Tr. po khimii i khim. tekhnol. [Gor'kiy], no. 2, 1962, 450-453

TOPIC TAGS: nitrile, acrylonitrile, nitrile synthesis, acrylonitrile synthesis, propylene ammonia reaction

TRANSLATION: Acrylonitrile can be obtained in a one-step process from propylene and NH_3 (molecular ratio 3:1-1:1) in the presence of the catalysts: MoO_3 on Al_2O_3, containing 16.7% MoO_3 (see RZhkhim, 1961, 17L99), or $BiPO_4 \cdot 12MoO_3 \cdot 12H_2O$ (see RZhkhim, 1961, 16L108). The reaction takes place either in a stream of air or a mixture of $O_2 + N_2$. The optimal temperature of the reaction on MoO_3 in a stream of air is 500C (volume rate = 450/hour), compared to 470C in the stream of $O_2 + N_2$ (volume rate = 540). In the stream of air the yield was higher, and the concentration of CO_2 obtained as a byproduct during the oxidation of propylene, was slightly lower (5%). The presence of water vapor and reduction of MoO_3 to

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ACCESSION NR: AR4015646

Mo_2O_3 had a positive effect on the yield of acrylonitrile. The yield of acrylonitrile on the second catalyst increased with time of contact. The yield of acrylonitrile was 5% on the basis of the amount of propylene passed through and 30-40% on the basis of the propylene reacted. L.R.

DATE ACQ: 07Jan64 SUB CODE: CH ENCL: 00

Card 2/2

BATALOV, A.P.; ROSTOKIN, G.A.; KORSHUNOV, I.A.

Radical exchange in organometallic compounds. Part 7: Phenyl radical exchange between phenyllithium and bromobenzene in ethyl ether. Zhur.ob.khim. 35 no.12:2146-2150 D '65.
(MIRA 19:1)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni N.I.Lobachevskogo. Submitted December 25, 1964.

U TSZYAN [Wu Chiang]; BATALOV, E.Ya. [translator]; VOYEVODIN, S.A. [translator]; ZANEGIN, B.N. [translator]; ZHAMIN, V.A., red.; TUZMUKHAMEDOV, R.A., red.; RYBKINA, V.P., tekhn.red.

[Problems of transforming capitalist industry and commerce in the Chinese People's Republic] Voprosy preobrazovaniia kapitalisticheskoi promyshlennosti i torgovli v KNR. Obshchaia red. i predisl. V.A.Zhamina. Moskva, Izd-vo inostr.lit-ry, 1960. 574 p. Translated from the Chinese. (MIRA 13:7)

(China--Industries) (China--Commerce)

S/193/61/000/011/004/007
A004/A101

AUTHORS: Selivanova, L. N., Batalov, I. G.

TITLE: Hydraulic ПА-195 (PA-195) flanging press of 800 tons capacity

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 11, 1961, 29-30

TEXT: The model PA-195 hydraulic flanging press has been developed and built by the Dnepropetrovskiy zavod tyazhelykh pressov (Dnepropetrovsk Heavy Press Plant) and is intended for the hot and cold bending, flanging and stamping of components from sheet, strip and other material. The press bed is a welded C-shaped structure composed of three sections. In the upper bed part along the press axis two vertical cylinders are placed, to the plungers of which the pressure plates are fixed. The hydraulic drive is mounted on the press. The stripper for the stamped parts is placed in the middle of the table. Two slewing jib cranes with telphers of 3 ton lifting capacity each are mounted on the press. The press is fitted with a tipping table and controlled by push-buttons. The following technical data are given: vertical cylinder pressure - 2 x 400 = 800 tons; lateral cylinder pressure - 100 tons; stripper pressure - 100 tons; plunger stroke of vertical and lateral cylinders - 1,200 and 1,000 mm;

Card 1/2

SELIVANOVA, L.N.; BATALOV, I.G.

The PA-195 hydraulic 800-ton capacity flanging press. Biul. [redacted] ekon.inform. no.11:29-30 '61. (MIRA 14:12)
(Hydraulic presses)

BATALOV, Kh.Kh.

Automatizing the control of the moment of friction for bearings in instruments. Priborostroenie no.8:25-27 Ag '56. (MLRA 9:10)

(Friction) (Bearings (Machinery))

AID P - 4206

Subject : USSR/Engineering

Card 1/1 Pub.103 - 7/20

Author : Batalov, Kh. Kh.

Title : Experimental Study of Spherical Grinding of Bearing Rings by the Oscillation Method.

Periodical : Stan. i instr., 1, 23-26, Ja 1956

Abstract : The author presents the results of his research on the spherical grinding of racing grooves in ball bearing outer rings by the oscillation method. The wear of abrasive disks in such grinding as it depends on the speed and angle of oscillation, the burns that appear on the ground surface and the fineness of the surface caused by special technique and skill in grinding are described. Two drawings, 2 tables and 11 graphs.

Institution : None

Submitted : No date

BATALOV, L. G.

DA 6/49T18

[redacted]/Engineering
Energy - Conservation
Peat - Production

Jun 48

"Lowering the Electric Power Consumption at Enterprises Producing Hydro-Peat," L. G. Batalov, Kaziya Peat Enterprise, ½ p

"Prom Energet" No 6

Line diagram of plant is reproduced. Proposal, awarded a fourth prize, cuts out unnecessary pumping via bypasses.

6/49T18

BATALOV, N. (Stalinogorsk); MENTSINGER, V., kr[illegible]ker (Moskva); DEDKOVSKIY, M., (g. Yakutsk); ICHITOVKIN, Ye. (g. Vyborg). SERGEYEV, A.; GRANOV, V.; ALESHECHKIN, V. (Moskva); LIKHANOV, A. (g. Kirov); USTINOV, A. (g. Noginsk).

Letters to the editor. Sov. foto 19 no.2:86-87 F '59. (MIRA 12:3)

1.Mosknigotorg (for Mentsinger).
(Photography)

BATALOV, N.; GOL'DBERG, Ya.

34 times, such is the increase in volume of transports in twenty years. Grazhd. av. 21 no.10:1-3 O '64. (MIRA 18:3)

1. Komandir Litovskoy otdel'noy aviagruppy grazhdanskoy aviatsii (for Batalov). 2. Zamestitel' komandira po politicheskoy chasti Litovskoy otdel'noy aviagruppy grazhdanskoy aviatsii (for Gol'dberg).

BATALOV, NIKOLAY MIKHAYLOVICH

BATALOV, Nikolay Mikhaylovich; YUR'YEV, Mikhail Grigor'yevich; MUSVIK, Boris Karlovich; DVORYANKIN, Mikhail Petrovich; GORNOV, Mikhail Maksimovich; NIKIFOROVA, Anna Ivanovna; VINOGRADOV, N.V., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Fifth five-year plan in progress; activity of the Kirov "Dinamo" plant in Moscow] Piataia piatiletka v deistvii; opyt raboty Moskovskogo zavoda "Dinamo" imeni S.M.Kirova. Moskva, Gos. energ. izd-vo, 1954. 102 p. [Microfilm] (MLRA 8:2)
(Moscow--Electric industries)

BATALOV,N.M., inzhener, laureat Stalinskoy premii; MALKIN,D.M., inzhener

Drafting work system for massproduction products. Standartizatsiia. no.2:61-67 Mr-Ap '55. (MLRA 8:6)
(Drawing-room practice)

BATALOV, Nikolay Mikhaylovich; TRAKHTMAN, Leonid Mironovich; STEPANOV, A.D., kand.tekhn.nauk, retsenzent; BYCHKOVSKIY, A.V., kand.tekhn. nauk, red.; TIKHONOV, A.Ya., tekhn.red.

[Handbook on electrical equipment in railroad rolling stock] Spravochnik po tiagovomu elektrooborudovaniiu zheleznodorozhnogo podvizhnogo sostava. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1956. 159 p. (MIRA 12:8)
(Railroads--Electric equipment)

Kalinin, K.M.

ZAKHARCHENKO, D.D,dotsent, kandidat tekhnicheskikh nauk; ISAYEV, I.P., dotsent, kandidat tekhnicheskikh nauk; KALININ, V.K.,inzhener; KRNST'YANOV, M.Ye.,dotsent, kandidat tekhnicheskikh nauk; LAKSHTOVSKIY, I.A.,dotsent, kandidat tekhnicheskikh nauk; MARKVARDT, K.G.,professor, doktor tekhnicheskikh nauk; MEDEL', V.B., professor, doktor tekhnicheskikh nauk; MIRONOV, K.A.,inzhener; MIKHAYLOV, N.M.,dotsent, kandidat tekhnicheskikh nauk; NAKHODKIN, M.D., dotsent, kandidat tekhnicheskikh nauk; OZEMBLOVSKIY, Ch.S., inzhener; OSIPOV, S.I.,inzhener; ROMASHKOV, S.G.,inzhener; SOKOLOV, L.S.,inzhener; FAMINSKIY, G.V.,kandidat tekhnicheskikh nauk; SHATSILLO, A.A.,inzhener; SHLYAKHTO, P.N.,dotsent, kandidat tekhnicheskikh nauk; BOVE, Ye.G.,kandidat tekhnicheskikh nauk, retsenzent; FERTSOVSKIY, L.M.,inzhener, retsenzent; ALEKSEYEV, A.Ye.,professor, doktor tekhnicheskikh nauk, retsenzent; BATALOV, N.M.,inzhener, retsenzent; VINBERG, B.N.,inzhener, retsenzent; GERCHEVA, L.O., kandidat tekhnicheskikh nauk, retsenzent; YEVDOKIMOV, A.M., inzhener, retsenzent; KALININ, S.S.,inzhener, retsenzent; TRAKHTMAN, L.M.,kandidat tekhnicheskikh nauk,retsenzent; PYLENKOV, A.P.,inzhener, retsenzent; GOKHSHTEIN, B.Ya.,kandidat tekhnicheskikh nauk, retsenzent; IL'IN, I.P.,inzhener, retsenzent; NAKHODKIN, M.D.,dotsent, kandidat tekhnicheskikh nauk, retsenzent; TISHCHENKO, A.I.,otvetstvennyy redaktor; HEIFETS, I.I., kandidat tekhnicheskikh nauk, redaktor; ZOROKHOVICH, A.Ye.,dotsent kandidat tekhnicheskikh nauk, redaktor; LUTSENKO, Ye.G.,inzhener, redaktor; ROGOZHIN, A.P.,inzhener, redaktor; SIDOROV, N.I., inzhener, redaktor; VERINA, G.P.,tekhnicheskiy redaktor

(Continued on next card)

ZAKHARCHENKO, D.D.---(continued) Card 2.

[Technical manual for railroad workers] Tekhnicheskii spravochnik zheleznodorozhnika. Red. kollegiia R.G. Granovskii i dr. Moskva, Gos. transp. zhel-dor. izd-vo. Vol. 9.[Electric railroad rolling stock] Elektropodvizhnoi sostav zheleznykh dorog. Otv. red. toma A.I. Tishchenko. 1957. 652 p. (MLRA 10:4)

1. Chlen-korrespondent Akademii nauk SSSR. (for Alekseyev)
(Electric railroads--Rolling stock)

BATALOV, Nikolay Mikhaylovich; BELYY, Valentin Antonovich; IOFFE, Aleksandr Borisovich; RABINOVICH, Aron Abramovich; SINAYSKIY, Mikhail Mikhaylovich; IVANOV, V.M., red.; VORONIN, K.P., tekhn.red.

[Electric motors for cranes and metallurgical plants; theory, construction, use] Kranovo-metallurgicheskie elektrodvigateli; teoriia, konstruktsiia, primenenie. Pod obshchei red. A.A.Rabinovicha. Moskva, Gos. energ. izd-vo, 1958. 168 p. (MIRA 11:5)
(Electric motors)

BATALOV, N.S., buril'shchik

We use progressive labor methods. Neft.khoz. 35 no.1: 62-63 Ja '57. (MLRA 10:2)

1. Pervaya kontora bureniya tresta Tuymazaburneft'.
(Oil well drilling)

BATALOV, Nikolay Mikhaylovich; PETROV, Boris Petrovich; BARSKIY, M.R., kand. tekhn.nauk, retsenzent; KRICHKO, A.I., inzh., retsenzent; STEPANOV, A.D., doktor tekhn. nauk, retsenzent; SIDOROV, N.I., inzh., red.; LARIONOV, G.Ye., tekhn. red.

[Electric traction machinery] Tiagovye elektricheskie apparaty. Moskva, Gos. energ. izd-vo, 1961. 207 p. (MIRA 15:3)
(Electric machinery) (Electric railroads)

BATALOV, Nikolay Mikhaylovich, inzh.; MALKIN, David Mendeleyevich, inzh.; GORDON, V.O., prof., retsenzent; SOLNTSEVA, T.Ye., kand. tekhn. nauk, red.; SOKOLOVA, T.F., tekhn. red.

[Technical fundamentals of mechanical drawing; execution of drawings and other technical documents] Tekhnicheskie osnovy mashinostroitel'nogo cherchenila; vypolnenie chertezhei i drugikh tekhnicheskikh dokumentov. Moskva, Mashgiz, 1962. 500 p. (MIRA 15:6)

(Mechanical drawing)

BATALOV, R., kapitan.

Special features of aerial navigation in fall and winter. Vest. Vozd.Fl. 34 no.11:20-24 N '51. (MLRA 8:3)
(Navigation (Aeronautics))

BATALOV, R

AID P - 969

Subject : USSR/Aeronautics

Card 1/1 Pub. 135 - 13/21

Author : Batalov, R., Guards Major

Title : Atomic weapons in land combat

Periodical : Vest. vozd. flota, 12, 67-70, D 1954

Abstract : This is a review by Batalov, R., Guards Major of the book published in the USA in 1953 of this title by Cols. Reinhard and Kintner.

Institution : None

Submitted : No date

AID P - 5216

Subject : USSR/Aeronautics - bombing

Card 1/1 Pub. 135 - 2/26

Author : Batalov, R. Sh., Maj.

Title : Night bombing attack by a flight carrying flares

Periodical : Vest. vozd. flota, 11, 8-12, N 1956

Abstract : The author recommends that during a night bombing attack the bomber flight should carry flares for the target illumination and thus the use of special pathfinder aircraft is eliminated. Two diagrams, 1 table. The article merits attention.

Institution : None

Submitted : No date

BATALOV, R.Sh.

AID P - 5456

Subject : USSR/Aeronautics - training

Card 1/1 Pub. 135 - 2/29

Authors : Pasternak, F. S., Eng.-Maj. and R. Sh. Batalov, Major

Title : Controlling a flight of bombers at night

Periodical : Vest. vozd. flota, 2, 10-14, F 1957

Abstract : The authors describe how a formation of bombers in a flight strength, when flying at night or in daytime in clouds, can be controlled with the aid of ground radar stations. Three photos. The article merits attention.

Institution : None

Submitted : No date

BATALOV, R. Sh.

86-1-14/30

AUTHOR: Batalov, R.Sh., Lt Col

TITLE: Safe Time Intervals of Bombers at Night (Bezopasnyye vremennyye intervaly bombardirovshchikov noch'yu)

PERIODICAL: Vestnik Vozdushnogo Flota, 1958, Nr 1. pp. 33-39 (USSR)

ABSTRACT: In this article the author deals with the problem of how to establish safe time intervals between the bombers at night. He discusses in detail various factors (deviations in speed and heading, execution of turns) which may affect the safe time intervals of two bombers if they both have been assigned the same altitude and course. Then he shows how to calculate the time for safe intervals. In conclusion, the author cites that a commander, by skillful selection of flight conditions, may reduce considerably the time interval without jeopardizing flight safety; however, the most important factor in flight safety, he adds, is the training level and experience of crews. Four diagrams.

AVAILABLE: Library of Congress

Card 1/1

SOBOLEV, N.D.; LEBEDEV-ZINOV'YEV, A.A.; NAZAROVA, A.S.; VILYUNOVA, L.P.; BATALOV, Sh.S.; BRYLINA, O.M.; AFANAS'YEVA, L.K.; OVCHINNIKOVA, S.V.; red.izd-va; OVANOVA, A.G., tekhn.red.

[Neogene intrusives and the pre-Mesozoic base in the region of Caucasian mineral waters] Neogenovye intruzivy i domezozoiskii fundament raiona Kavkazskikh mineral'nykh vod. Moskva, Gos.nauchno-tekhn.izd-vl lit-ry po geol. i okhrane nedr, 1959. 208 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut mineral'nogo syr'ia. Trudy, no.3). (MIRA 12:11)

(Caucasus, Northern--Rocks, Igneous)

POLYAKOV, V.V., inzh.; SOBININ, A.I., inzh.; BATALOV, Sh.Sh., inzh.

Use of optical centering devices in fitting operations. Sudostroenie 26 no.3(209):46-48 Mr '60. (MIRA 14:11)
(Shipfitting)

BATALOV, V., putevoy obkhodchik (st. Matrosovka, Odesskoy dorogi);
ORLOV, G. T., brigadir puti (st. Millerovo, Yugo-Vostochnoy dorogi);
LAZOVATSKIY, G. A., inzh.; VLASENKO, F. F.; BYCHKOV, L. Ya.,
mekhanik (st. Nikel'-Tau, Kazakhskoy dorogi)

Letters to the editor. Put' i put. khoz. 6 no.9:47 '62.
(MIRA 15:10)

1. Zaveduyushchiy masterskimi, st. Nikel'-Tau, Kazakhskoy dorogi
(for Vlasenko).

(Railroads)

BATALOV, V.D., putevoy obkhodchik

United collective. Put' i put. khoz. 7 no.5:44 '63. (MIRA 16:7)

1. Stantsiya Matrosovka, Odessko-Kishinevskoy dorogi.
(Railroads—Employees)

BATALOV, V.D., putevoy obkhodchik

Gardens are flourishing. Put' i put.khoz. 7 no.9:13 '63.
(MIRA 16:10)

1. Stantsiya Matrosovka, Odessko-Kishinevskoy dorogi.

BATALOV, V. I.

BATALOV, V.I., inzh.

Cutting conditions and optimum cutting tool geometry in machining steel coatings obtained by electric metal spraying. Mashinostroitel' no.9:33-36 S '57. (MLRA 10:9)
(Metal cutting) (Cutting tools)

TROYANOVSKIY, M.V.; BATALOV, V.I.

Cutting external conic thread. Stan. i instr. 36 no.6:39 Je '65. (MIRA 18:8)

BATALOV, V.S., Cand Tech Sci -- (diss) "On the problem of the perfecting of plant technology in the production of high-strength prefabricated reinforced concrete items." Len, 1959, 20 pp with graphs (Min of Higher Education USSR. Len Order of Labor Red Banner Engineering Construction Inst. Chair of Construction Production) 150 copies (KL, 33-59,118)

KURMAYEV, A.D.; BATALOV, V.S.

Plastic composition for taking molds of threaded joints. Plast.-massy no.5:66 '62. (MIRA 15:4)

(Plastics)

BATALOV, V.S., kand.tekhn.nauk; NIKOLAYEVA, K.L.; DRATT, Ye.A., inzh.

Obtaining high-strength concrete based on ordinary cement.
Bet. i zhel.-bet. 8 no.7:294-297 Jl '62. (MIRA 15:7)
(Concrete--Testing)

ZIMNEVICH, N.P.; GOL'DENBERG, G.O.; BATALOV, V.S.; SEMASHIN, G.K.

Organizing concreting operations at the construction sites of ferrous metallurgy. Prom. stroi. 42 no.4:11-13 '65. (MIRA 18:4)

1. Trest "Magnitostroy" (for Zimnevich, Gol'denberg). 2. Magnitogorskiy gornometallurgicheskiy institut (for Batalov, Semashin).

BATALOV, V. V., [illegible], A. P.

Fruit Culture - Leningrad Province

Terrace orchard on the "Ruch'i" state farm. Sad i og., No. 3, 1952

Monthly List of Russian Accessions. Library of Congress October 1952. Unclassified.

BATALOV, V.V.

"Conservation" of roots of primary structure in winter. Bot. zhur. 43 no.6:855-857 Je '58. (MIRA 11:7)

1.Chuvashkiy sel'skokhozyaystvennyy institut, g. Cheboksari.
(Roots (Botany)) (Trees in winter)

BATALOV, Yu.N., inzh.; BESCHASTNOV, G.A., inzh.; YUDOV, M.F., kand.tekhn. nauk

Start of a large synchronous hydrogenerator in a motor mode of operation. Elektrotekhnika 36 no.8:11-16 Ag '65. (MIRA 18:9)

MIRONOV, P.; APOSTOLOV,L.; BATALOV, Zg.

Treatment of myocardial infarction with cortisone. Folia med. (Plovdiv) 6 no.1:53-57 '64

1. Higher Medical Institute "I.P.Pavlov", Plovdiv, Bulgaria, Chair of Internal Diseases with Therapeutics (Chief: Prof. P. Mironov).

APOSTOLOV, L.; BATALOV, Z.

Effect of Ritmos on Wolff-Parkinson-White syndrome. Folia med. (Plovdiv) 7 no.2:141-151 '65.

1. Higher Medical Institute "I.P. Pavlov", Plovdiv, Bulgaria, Chair of Internal Medical Medicine and Therapy.(Chief: Prof. P. Mironov).

FEDOROVSKAYA, M.F.; RYBAK, V.M.; BATALOVA, F.A.; GELENKOV, V.G.; IOKTON, B.M.; POTEMKINA, O.N.; SHUVALOVA, A.M.

Results of the treatment of chronic colitis of infectious etiology by means of siphon lavage of the intestine with hypotonic solution of Tambukan mud. Sbor. nauch. rab. vrach san.-kur. uchr. profsoiuzov no.1:136-139 '64. (MIRA 18:10)

1. Yessentukskiy sanatoriy "Kommunist" (glavnyy vrach M.I.Ponomarev).

The mechanism of solidification of thermosetting plastics

20-5-38/60

AUTHOR KANAVETS, I.F., BATALOVA, L.G.

TITLE The Behaviour of Thermosetting Plastics
(Uprugo-elasticheskiye i vyazko-plasticheskiye svoystva termoreaktivnykh plastmass. Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 1053 - 1057(U.S.S.R.)

ABSTRACT The changes of the mechanical properties of thermosetting plastics under the influence of temperature and long-lasting stresses have hitherto not been sufficiently studied. According to present theories on high polymers the closest connection between the structure of the material and its mechanical properties is determined from the measurings of the kinetics of deformation increase of simple displacement after application of a given permanent strain and after the kinetics of deformation decrease after removal of the stress. The authors' investigations were performed with the most important types of plastics produced on the basis of phenol and anilin-formaldehyde resins. The measurements of hardened plastics were performed on an apparatus expressly constructed for this purpose. The constant value with regard to time of the torsional moment was given by a weight on a disk of 100 mm in diameter. The relaxation of strain in the materials and the limitting stress of the shift P_k were measured by a pendulum dynamometer according to the decrease of the deviation of the pendulum in time. Results: 1.) Thermosetting plastics at normal

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The Behaviour of Thermosetting Plastics

temperature and under the influence of a permanent strain at stresses above the centrifugal limit P_k, undergo also residual deformations. An irreversible deformation was also observed after 15 hours of heating of the sample at 90°C. 2.) In various types of material the stress causes a deformation which is 2 to 3 times greater than the elastic one. 3.) The time of influence of the force reduces the value of restoration of the deformation in the following manner: after 30 seconds this deformation is by 10 % greater in the case of stress as compared with the removal of the stress, after 20 hrs. - 25 %, after 500 hrs. - 50 %. This also indicates a partial break-up of linkages. 4.) Both kinds of deformation increase with increasing temperature of the experiment. Below the temperature of thermal stability (T_c) the elastic deformation remains less than the other one. At temperatures above T_c it sharply increases. 5.) The applied strain after some time does not drop to zero but to a certain boundary-value P_k of a magnitude of from 200 - 250kg/cm². 6.) The limitting stress of the shift P_k, the modulus of the second deformation and the elasticity modulus in semi-logarithmic coordinates in dependence of the inverse value of absolute temperature are described

The Behaviour of Thermosetting Plastics

by two intersecting straight lines. 7.) The fact that at a normal temperature the abnormal deformation is greater than the elastic one, and that its modulus is smaller than the elasticity modulus, indicates a loose structure of the plastics. 8.) The reduction of the modulus of abnormal deformation G_1, of the elasticity modulus G_2, of the viscosity of the plastic η_1 and the viscosity of the elastic flow η_2 (of the relaxation periods τ_1 and τ_2) with increasing temperature is only observed up to the temperature of the thermal stability. For these reasons more solid products may be obtained from thermosetting plastics in case that a greater destruction of the loose structure of resin in the flow is obtained in the deformation of the products than if they are deformed almost without any flow of material.
(With 3 figures, 2 tables, 3 Slavic references).

Card 3/4

The Behaviour of Thermosetting Plastics

ASSOCIATION Scientific Research and Designing Institute for Plastics (Nauchno-issledovatel'skiy i proyektnyy institut plasticheskikh mass)
PRESENTED BY REBINDER, P.A., Member of the Academy
SUBMITTED 16.11.1956
AVAILABLE Library of Congress

Card 4/4

S/191/60/000/001/013/015
B016/B054

AUTHORS: Kanavets, I. F., Batalova, L. G., Romashova, A. G.

TITLE: Some New Principles for the Rating of Technological Properties of Thermoreactive Molding Materials (Scheme of the ГОСТ (GOST))

PERIODICAL: Plasticheskiye massy, 1960, No. 1, pp. 63-73

TEXT: The present article is meant to be an introduction to the draft of a ГОСТ (GOST) standard on the method of determining the technological characteristics of thermoreactive molding materials (present periodical, pp. 73-78). The authors state that the most important characteristics of these molding materials are closely related with the degree of polycondensation, the polydispersion, and the structure of the resins used. The characteristics are: plasticity, rate of solidification, and structural-mechanical properties of the material in the finished product. The authors consider the hitherto used control methods to be inadequate since they are based on conventional values, not absolute data. For this reason, they

Some New Principles for the Rating of Technological Properties of Thermoreactive Molding Materials (Scheme of the ГОСТ (GOST))

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B016/B054

developed a plastometric measuring method to distinguish the processes with predominant growth of the polymeric chains from the processes with predominant structural development. The method permits the production of molding materials with given properties. This is of decisive importance for the mechanization and automation of production. The authors found by the plastometric method that the solidification processes take place as self-inhibiting reactions. Hence, it follows that the material of the finished product has different properties depending on the stage of polycondensation of the resin in the molding powder. By conversion of the resin into a higher stage of polycondensation by means of rolling, it is possible to produce molding powders of higher quality. The testing instrument "Plastometer" of I. F. Kanavets (Fig. 1) described here supplies the required absolute characteristic values (Refs. 1-3). The principle of this measuring method is based on the feed into a preheated mold of the instrument of a weighed portion of the molding material from which the sample is formed. Subsequently, the external part of the mold is set in a rotary mo-

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tion. A shear stress reflecting the kinetics of solidification of the material is formed in the material by the rotation. This shear stress is measured by a dynamometer, or automatically entered in a diagram (Fig. 2). It was found for the first time by this method that the process of solidification of thermoreactive molding materials takes place in two stages. This permits a new kind of rating the plasticity of molding materials during production. The investigations were carried out at the NIIPM (Nauchno-issledovatel'skiy institut plasticheskikh mass, Scientific Research Institute of Plastics). The "Plastometer" of Kanavets permits the determination of all essential technological characteristics in one operation. Besides a considerable improvement of the properties of molding materials, the new measuring method will permit the responsibility for the quality of finished products to be clearly divided between the manufacturing and the processing plants. The authors demand a series production of the measuring instrument which can also be used in other branches of industry (rubber, machines) besides the plastics industry. They mention the TsNIITOP, Gor'kovskiy institut po normirovaniyu tekhnologicheskikh protsessov

Some New Principles for the Rating of Technological Properties of Thermoreactive Molding Materials (Scheme of the ГОСТ (GOST))

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(Gor'kiy Institute of Standardization of Technological Processes), the Vladimirskiy zavod (Vladimir Works), the zavod "Karbolit" ("Karbolit" Works), the Okhtinskiy khimicheskiy kombinat (Okhta Chemical Combine), the Karacharovskiy zavod (Karacharovskiy Works), the Mezhotraslevyy NTS (Interbranch Council for Science and Technology) of the NIIPM, and the Komitet standartov (Committee on Standards). There are 13 figures, 6 tables, and 7 Soviet references.

Card 4/4

S/191/60/000/002/012/012
B027/B058

AUTHORS: Kanavets, I. F., Batalova, L. G.

TITLE: A New Instrument, the Elastometer for Determining the Structural and Mechanical Properties of Polymer Materials

PERIODICAL: Plasticheskiye massy, 1960, No. 2, pp. 64-72

TEXT: The authors designed a new elastometer for testing polymer materials at various temperatures and rates of load application. Despite its relatively small dimension, this table-mounted instrument permits a sample load of up to 3 t and serves to determine the structural and mechanical properties of pressed materials, such as breaking limit for static bending, hardness, resistance to frost as well as relaxation period, in order to establish suitable processes for drawing and stabilizing of the films. The elastometer mainly consists of a dynamometer with scale, recording drum, reducer, thermostat tank and a table. The instrument is suitable for testing samples of various form as well as films by means of special clamps which prevent loosening of the film. The samples are suspended on a lever connected with the dynamometer; the parts of the instrument are arranged

A New Instrument, the Elastometer for Determining the Structural and Mechanical Properties of Polymer Materials

S/191/60/000/002/012/012
B027/B058

in such a way that the sample together with clamps and rods can be immersed in the thermostat tank and experiments can be conducted in various media and at various temperatures. The device for the deformation of the sample at the same time serves for recording the deformations on the recording drum. A micrometer is mounted either on the drawrods or on the sample for measuring the deformations. The instrument is easy to operate and a distortion of measurements is excluded by the way the micrometer is connected with the drawrod; the load acting on the sample is not transmitted to the frame, thus excluding a measurement distortion by deformation of the frame. The instrument was successfully tested at the NIIPM (Scientific Research Institute of Plastics). P. A. Rebinder is mentioned. There are 13 figures and 8 Soviet references.

Card 2/2

158500

S/191/60/000/003/009/013
B016/B054

AUTHORS: Kanavets, I. F., Batalova, L. G.

TITLE: Method of Determining Heat Resistance of Plastics

PERIODICAL: Plasticheskiye massy, 1960, No. 3, pp. 58 - 63

TEXT: The authors describe their method of determining the properties of thermosetting plastics: heat resistance and temperature at the beginning of decomposition. Besides, they describe a method of determining the transition temperature of thermoplastics into the vitreous and viscous-liquid state. For this purpose, the authors used three types of small specimens (A: two-layer specimen; B: specimen with gradations; C: specimen for sheets). These specimens ensure accurate measurement of shear and elongation deformations at different temperatures, and thus also the determination of the elastic modulus. With the use of these specimens, results are accurate because the specimen does not glide in the holder. The authors' method permits an observation of changes in thermosetting plastics caused by thermal transformations of the polymer, which change the density and effect a shrinkage. In the

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Method of Determining Heat Resistance of Plastics

S/191/60/000/003/009/013
B016/B054

authors' method, the effect of the filler in sheet materials (including glass-reinforced plastics) is reduced to a minimum when determining the heat resistance. This is of great importance to the production of resins capable of withstanding higher temperatures. The authors mention papers by V. A. Kargin (Refs. 1-3), S. N. Zhurkov, I. A. Maygel'dinov, A. I. Marey (Refs. 10-13), and V. V. Tarasov (Refs. 14-16). G.I. Belkina assisted in the experiments. N. V. Shorygina, V. N. Kotrelev, and T. D. Kostryukova supplied resins and polycarbonates. There are 12 figures and 17 Soviet references.

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S/191/60/000/004/005/015
B016/B058

AUTHORS: Andrianova, N. V., Batalova, L. G., Kanavets, I. F.

TITLE: Processing of Polyethylene Terephthalate to Film

PERIODICAL: Plasticheskiye massy, 1960, No. 4, pp. 18-27

TEXT: The authors report on the method elaborated by them for the transesterification and polycondensation of dimethyl terephthalate (DMT), from which polyethylene terephthalate (PETP) is produced. The blowing of nitrogen, vapor, or inert gas through the reaction mass is discarded in this process. The polymer obtained by the authors warrants the required film properties. This polymer was synthetized for the first time by V. V. Korshak and collaborators, under the name of "lavsan", by polycondensation of ethylene glycol with terephthalic acid. The film produced by conventional methods loses its amorphous state when heated. This was prevented by the authors by orientation of the amorphous film and by heating it in the orientated state. The authors consider the following points as being the most important problems of the manufacture of films from PETP: 1) determination of the quality of the polymer, warranting a desired quality of the film;

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2) determination of the rate and temperature of extension, as well as the temperature and duration of film stabilization; 3) determination of the degree of orientation and the extension coefficients of the film. For the determination of the structural and mechanical properties of the film, the authors recommend an elastometer (Fig. 1) with special clamps, developed at the NIIPM (Nauchno-issledovatel'skiy institut plasticheskikh mass, Scientific Research Institute of Plastics). The degree of film extension is transferred to a dynamometer and automatically recorded in a diagram. This instrument is described in Ref. 1. From data determined by means of the elastometer, the authors conclude that extension should take place at the highest possible rate and at the lowest possible temperature, for the purpose of increasing the film strength. These two conditions are determined by the stress required for the orientation of the polymer. It is noted that a stress of 80 kg/cm^2 must be applied at the constriction of the cross section of the specimen and one of 300 kg/cm^2 outside this section. The film strength gradually increases in the direction of extension, whereas it decreases perpendicularly to the direction of extension. By extension in two directions perpendicular to each other, the authors therefore obtained equal film strength in both directions. The coefficient of extension

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was determined from the change of thickness, surface, and strength of the film produced at various temperatures. The coefficients of extension thus ascertained determine how many times the film is to be extended in both directions on the extension device. The authors further propose a method for determining the applicability of PETP resins for film production. They come to the conclusion that the resin quality is determined by the shear stress or the viscosity of an amorphous film extended at given rate and temperature. Stable film dimensions are obtained by heating at 180°C. Film shrinkage can be prevented by orientation in two directions. As the film cannot be welded, the authors glued it successfully with glue made from polyester of terephthalic and sebacic acids, as well as from ethylene and diethylene glycols. The film may be glued to metal with glue of the type БФ-4 (BF-4). Papers by V. A. Kargin and T. I. Sogolova (Refs. 5-7) are mentioned. There are 17 figures, 3 tables, and 14 references: 11 Soviet, 2 British, and 1 US.

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S/191/60/000/006/006/015
B004/B054

5.3832

AUTHORS: Rodivilova, L. A., Batalova, L. G., Vlasova, K. N., Kanavets, I. F.

TITLE: Influence of Length and Type of the Alcohol Side Radical on the Structural and Mechanical Properties of Methylol Polyamides

PERIODICAL: Plasticheskiye massy, 1960, No. 6, pp. 14 - 19

TEXT: The authors refer to previous papers (Refs. 1,2,5) in which they studied polycondensation by measuring the structural and mechanical characteristics of commercial methylol polyamides. The structure of these compounds was as follows: ...-$HN(CH_2)_n\underset{CH_2OH}{N}CO(CH_2)_mCONH(CH_2)_n\underset{CH_2OC_2H_5}{N}CO$-... .

The present paper deals with the influence of alcohols, in the medium of which the polycondensation takes place, and whose radicals are introduced as a side chain into the polymer. Further, the authors studied the hardening process under the action of high temperatures, and the change in

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Influence of Length and Type of the Alcohol Side Radical on the Structural and Mechanical Properties of Methylol Polyamides

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mechanical properties by different hardening agents. Fig. 1 indicates the experimental data (deformation as a function of stress) for polyamide films of the type 54/10, and methylol polyamide films of the type ПФЭ-2/10 (PFE-2/10). Both substances contain a crystalline phase. Hardening changes the properties of PFE-2/10 and increases its tensile strength (Fig. 2). The strength of methylol polyamides, in which the ethyl group of the side chain was substituted by CH_3, C_3H_7, $CH_2C_6H_5$, C_4H_9, or CH_2CH-CH_2, decreased with increasing chain length of the radical, even more so in the case of substitution by allyl- or benzyl radicals (Fig. 3). After hardening by heating to 125-130°C in the presence of acid catalysts (oxalic acid, maleic acid, etc.), however, the films of differently substituted methylol polyamides showed only slight differences in their mechanical properties (Fig. 5). While in unhardened films the modulus of elasticity and the strength decreased if long alcohol molecules were introduced, these characteristics increased after hardening (Fig. 4). Fig. 6 shows the influence of temperature on МПС-1 (MPS-1) polyester film, Fig. 7 the influence on

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Influence of Length and Type of the Alcohol Side Radical on the Structural and Mechanical Properties of Methylol Polyamides

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PFE-2/10 film. Fig. 8 represents the logarithm of the elasticity modulus as a function of 1/T. The identical course of the straight line in MPS-1 and PFE-2/10 suggests the same nature of the intermolecular bond. Fig. 9 shows the influence of different hardening agents (benzoyl peroxide, styrene). The introduction of methyl side radicals weakens the hydrogen bond between the macromolecules of the polyamide. The introduction of radicals larger than CH_3 loosens the structure even more.

The properties of the polymer can be modified not only by different side radicals but also by the type of hardening agent and other high-molecular compounds. At temperatures above 80°C, the thermal activation energy is 1.14 kcal/mole, which suggests the dispersive character of the bonding forces in the resin. The authors mention papers by P. P. Kobeko (Ref. 6) and V. A. Kargin, G. A. Slonimskiy, A. I. Kitaygorodskiy (Ref. 7). There are 9 figures and 7 Soviet references.

KANAVETS, I.F.; BATALOVA, L.G.; Prinimala uchastiye MOKRUSHINA, M.V.

Determination of optimum conditions for processing thermoplastics by compression molding. Plast.massy no.3:18-28 '62. (MIRA 15:4)
(Thermoplastics--Molding)

36195
S/191/62/000/004/008/017
B110/B138

15.6061

AUTHORS: Kanavets, I. F., Batalova, L. G.

TITLE: Method of determining the thermal stability of, and highest permissible processing temperature for, thermoplastics

PERIODICAL: Plasticheskiye massy, no. 4, 1962, 22-27

TEXT: The thermal stability of thermoplastics is best determined from the variation in strength properties of products produced at different casting temperatures. The materials investigated here were Soviet-made polypropylene, foreign isotactic polypropylenes No. 1, and No. 2. The temperature dependence of the viscosity coefficient of the melt, determined by a plastometer, showed a sharp drop at 170-180°C, indicating the fusion of the crystalline polymer phase. An increase from $0.4 \cdot 10^6$ to $1 \cdot 10^6$ poise in the viscosity of fused polymer raises the ultimate tensile stress 1.5 times, the modulus of elasticity twice, and the elastic deformation by 10 %. In injection moulding the strength of the three samples fell with rising temperature. The lower limit of the moulding temperature is about 10°C higher than the temperature of transition to the viscous flow state.

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Method of determining the...

The maximum upper temperature for injection moulding should be such that the strength of the material is not reduced by more than 20 %. At 30°C above the viscous flow transition temperature, the strength falls 10 %, and at 50°C above it, 20 %. As all three samples have viscosity below 10^6 poise, the treatment for preserving optimum properties can be carried out at 10°C above the transition temperature to the viscous-flow state. The optimum temperature must provide uniform strength overall. In the case of polypropylene No. 1 and No. 2 products moulded at 190°C, the tensile strength of parallel and perpendicular pouring streams is almost the same. The strength of welds also corresponds to that of the material. If the pressure is halved and the same pouring temperature maintained, the strength is reduced. The decrease in strength with rising temperature indicates that the rate of thermal decomposition is higher than that of recombination of the decomposed products. The maximum permissible processing temperature is that below which the reduction in strength is not more than 10 %. In Soviet-made polypropylene it was 182°C (15 min), in polypropylene No. 1 it was 250°C (30 min) and in No. 2 it was 208°C (20 min). There are 8 figures and 4 tables.

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KANAVETS, I.F.; BATALOVA, L.G.

Determination of the flow rate of thermoplastics as applied to their processing operations. Plast.massy no.6:23-27 '62. (MIRA 15:6)

(Plastics--Testing) (Viscosity)

S/191/62/000/010/006/010
B101/B186

AUTHORS: Kanavets, I. F., Batalova, L. G.

TITLE: Method of determining the technical properties of thermoplastics

PERIODICAL: Plasticheskiye massy, no. 10, 1962, 27 - 36

TEXT: The Kanavets plastometer (Fig. 1) for determining the characteristics of plastics in absolute physical units with an accuracy of ± 3% is explained. The calibration of the apparatus has already been described (Plast. massy, no. 1 (1960)). The outside part of the mold is caused to rotate, and a belt pulley connects the shaft with the dynamometer. The faces which come into contact the substance to be tested, have grooves (1 mm deep). The apparatus makes it possible to plot graphs of shear stress versus relative deformation, from which the following values are determined: the coefficient η of the effective viscosity in poises, the relative elastic deformation, the relaxation period according to Maxwell, and the viscoelastic recovery. Viscosity is determined much faster and more

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exactly from the melt than from solution. The graphs log η versus 1/t show the transition from the vitriform state into the highly elastic and viscous flow states, and the activation energy U can be calculated from $\eta = A \cdot \exp(U/kT)$ where A is a constant. Furthermore, log η is a linear function of the square root of the molecular weight, and η is a linear function of the relative elastic deformation. Examples illustrate the determination of the technical properties of plastics from these characteristics, and the optimum conditions for their processing, aggregation, structuration, or destruction. The plastometer described is stated to be more accurate than Mooney's. It is intended to use the results for developing a commercial plastometer. There are 18 figures and 3 tables.

ACCESSION NR: AP4045027 S/0191/64/000/009/0050/0055

AUTHOR: Kanavets, I. F., L. G. Batalova

TITLE: Thermal expansion and compressibility of thermoplasts

SOURCE: Plasticheskiye massy*, no. 9, 1964, 50-55

TOPIC TAGS: thermoplast, thermal expansion, compressibility, polystyrene, polyethylene, polypropylene, polyformaldehyde, poly vinylchloride, polycarbonate, Moplen, Rilsan, Delrin

ABSTRACT: The thermal expansion and compressibility of various thermoplasts, such as polystyrene, low- and high-pressure polyethylene, polypropylene, polycarbonate, polyformaldehyde, Delrin, Rilsan, poly vinylchloride, and polyamide, were investigated; the testing apparatus is illustrated and described. The bulk thermal expansion was measured at a constant pressure of 50 kgs/cm^2 and a heating rate of one degree per minute. The compression was increased relatively slowly, 100 kgs/min. The compressibility was determined after the stable thermal stage at the given experimental temperature had been obtained. A formula is given for the calculation of the coefficient of bulk and linear thermal expansion. The temperature dependence of the linear and bulk expansion and the pressure dependence of the compressibility are plotted, the temperature dependence of the

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true coefficient of linear thermal expansion being obtained by graphical differentiation of the volumetric expansion curve. The bulk thermal expansion was determined at the molding temperature, and the density and thermal expansion values at the molding temperatures are tabulated for 14 plastics. The results show that the compressibility of amorphous and crystalline polymers over a pressure range of 50 - 1200 kgs/cm^2 increases with increasing temperature, especially above the glass temperature. Thus, for low-pressure polyethylene at 100 C and a pressure of 500 kgs/cm^2, the compressibility is about 0.5% while at 150 C it is about 3%. Under the same conditions, the compressibility of Moplen is doubled, and that of Delrin is increased 700%. The compressibility of Delrin at 200 - 250 kgs/cm^2 is about 6%, and at a pressure of 500 kgs/cm^2 it is 7.5%. There is a great difference between the compressibility of polyamide 68 and Rilsan. The addition of a filler decreases the thermal expansion by 0.9%. The mechanism of thermal expansion and compressibility is discussed in relation to polymer structure. This method is a development of a widely used thermomechanical method and can be used for measuring the compressibility of polymers and molding compounds in the viscous state. By using the density values of thermoplasts at room temperature and the established temperature dependence of the thermal expansion, the density of thermoplasts can be determined at any temperature ranging from room temperature to molding temperature. It appears that the

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ACCESSION NR: AP4045027

compressibility of thermoplasts during die casting compensates only in part for the bulk thermal expansion. "G. P. Batalov took part in the experimental work." Orig. art. has: 17 figures, 1 table and 3 formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 010 OTHER: 001

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L 41500-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP4046379 S/0020/64/158/003/0660/0663

AUTHOR: Nametkin, N. S. (Corresponding member AN SSSR); Perchenko, V. N.; Batalova, L. G.

TITLE: The feasibility of N-(ethylenimino)silane synthesis by the dehydrocondensation reaction

SOURCE: AN SSSR. Doklady*, v. 158, no. 3, 1964, 660-663

TOPIC TAGS: silane, ethyleniminosilane, dehydrocondensation, ethylenimine

ABSTRACT: A new preparative method for N-(ethylenimino)silanes, involving dehydrocondensation, has been found:

$$R_3SiH + HN\begin{cases}CH_2\\CH_2\end{cases} \xrightarrow{Cat.} R_3SiN\begin{cases}CH_2\\CH_2\end{cases} + H_2.$$

The reaction proceeded quantitatively (on evolving hydrogen) at 40—50C in the presence of lithium catalyst. The yield of the nine N-(ethylenimino)silanes repared varied from 40-80%. Preservation of the

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ACCESSION NR: AP4046379

ring in the reaction products was confirmed by IR spectroscopy. The results indicate that with regard to the dehydrocondensation reaction, ethylenimine is a special class as compared to aliphatic and cyclic amines. This fact was confirmed by control experiments with diethyl- or dipropyl-amine or piperidine, which did not react under identical conditions, evidently owing to their greater basicity. The dehydrocondensation rate depended on the substituent on Si; the rate was highest for phenyl and benzyl radicals, lower for aliphatic radicals. In the presence of an ethoxy radical, the reaction did not go unless the temperature was raised to 50C. Orig. art. has: 1 figure, 1 table, and 2 formulas.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva Akademii nauk SSSR (Institute of Petrochemical Synthesis, Academy of Sciences SSSR)

SUBMITTED: 19May64 ENCL: 00 SUB CODE: OC, IC

NO REF SOV: 001 OTHER: 005

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KARAVAYEV, I.F.; BATALOVA, L.G.

Thermal expansion and compression of thermoplastics. Plast.massy no.9:53-55 '64. (MIRA 17:10)